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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,151	04/01/2004	Insoo Kim	TK-0001	7359

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EXAMINER
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WYSZOMIERSKI, GEORGE P

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/814,151

Applicant(s)

KIM ET AL.

Examiner

George P. Wyszomierski

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-12, 14, 17-20 and 22-25 is/are rejected.
- 7) ☒ Claim(s) 7-9, 13, 15, 16 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

*Claim Interpretation*

1. The independent claim states that one forms “nanosized metal particles”. However, it is noted that dependent claims 24 and 25 indicate that the average diameter of these particles may be as high as 1,000 nm, which is higher than what many persons in the art consider to be nanosized particles. The claims will be given their broadest reasonable interpretation, and will be construed as encompassing processes which result in particles having a diameter at least as high as 1000 nm.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1, 3-5, 10-12, 14, 20 and 23 are rejected under 35 U.S.C. 102(a) as being anticipated by Chinese Patent 1480584 A.

The English translation of CN '584 discloses mixing various bases including sodium hydroxide in a silver nitrate solution, mixing a second solution containing ethanol as a solvent, and combining the two solutions, followed by an oxidizing step using hydrogen peroxide, to prepare a material containing silver nanoparticles. With respect to claim 14, it is considered inherent that the solvent contains either no surfactant or at least one surfactant. Thus, the claimed invention is held to be fully met by the disclosure of Chinese 1480584 A.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 6, 17-19, 22, 24 and 25 lack an inventive step under PCT Article 33(3) as being obvious over Chinese patent 1480584 A.

The '584 translation does not specify the ratio of silver nitrate to solvent as set forth in claim 2, the specific solvents of claim 6, the temperature of claims 17 and 18, the separation step of claim 19, the two-step procedure of adding peroxide as set forth in claim 22, or the particle diameters of claims 24 and 25. However,

a) The ratio defined in claim 2 is a very broad range with the high end being greater than the low end by greater than a factor of 100; it is thus highly likely that any practical application of the '584 process would employ a ratio within the presently claimed limits.

b) China '584 employs alcohol generically as a solvent. It is axiomatic that one of skill in the art would choose to use one of the most readily available alcohols, such as methanol or ethanol, for this purpose in the '584 process.

c) With regard to temperature, it is a basic chemical principle that chemical reactions proceed at a faster rate at higher temperatures.

d) The '584 process is directed to obtaining nano-sized materials, and one skilled in the art would have employed a means such as filtration to separate the desired products from spent solvent and other undesired materials.

e) With regard to adding peroxide, such a step would not be instantaneous, but rather would involve adding peroxide over at least a brief period of time. This period of time can be broken down into two or more smaller time periods, during each of which some peroxide is added.

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f) With regard to particle diameter, both the prior art and the claimed invention preferably produce silver particles by similar processes. It is thus a reasonable assumption that the diameters of the particles formed in the respective processes would be the same in either instance.

Thus, the Chinese '584 disclosure is held to create a prima facie case of obviousness of the presently claimed invention.


6. Claims 7-9, 13, 15, 16 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or suggest a process as claimed and which includes the use of toluene as recited in claim 7, the particular precipitates of claims 8 and 9, the particular compounds of claim 13, the bubbling of inert gas required by claims 15 and 16, or the sonicating of claim 21.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. All patent application related correspondence transmitted by facsimile must be directed to the new central facsimile number, (571)-273-8300. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GPW  
June 15, 2006

  
GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER  
GROUP 1700